ORDER NO. SD83072600C2

Service Manual

MW/FM STEREO RADIO WITH CASSETTE TAPE DECK AND RECORD PLAYER

Portable Stereo

SG-J500 (K), (W)

[EX]

[EX]: Denmark,
Finland

Specifications

AMPLIFIER SECTION

Power Output	AC:	MPO 4W × 2 (THD 10%, 6Ω) RMS 1.9W × 2 (THD 10%, 6Ω)
	DC:	RMS 3W × 2 (THD 10%, 6Ω)

FM TUNER SECTION

Frequency Range	87.5 MHz ~ 108 MHz
Intermediate Frequency (IF)	10.7 MHz
Sensitivity	2.8 μV (at 1 kHz, 40 kHz) (DIN) at 75Ω
Stereo Separation	34 dB (at 1 kHz, 60 dB, 40 kHz)

AM TUNER SECTION

Frequency Range	525 kHz ~ 1605 kHz (571 m ~ 187 m)
Intermediate Frequency (IF)	450 kHz
Sensitivity	220 μV/m (1 MHz)

TAPE DECK SECTION

Deck System	Auto stop
Track System	4-Track, 2-Channel
Head Type	Hard Permalloy (Rec/Play) Double Gap Ferrite (Erase)
Recording System	AC Bias (50 kHz)
Erasing System	AC Erase (50 kHz)
Tape Speed	4.8 cm/sec.
Frequency Response	50 Hz ~ 12 kHz
Signal/Noise Ratio	50 dB (DIN)
Wow & Flutter	0.2% (WRMS)

PHONO SECTION

Turntable System	Belt drive
Turntable Platter	16 cm
Turntable Speed	33-1/3 rpm and 45 rpm
Phono-Motor	Electro-Governor DC Motor
Cartridge	Ceramic cartridge (EPC-13STH)
Stylus	Sapphire tip (EPS-41ST)
Stylus Pressure Range	5.9g

SPEAKER SYSTEM

Speaker	12 cm Dynamic Speaker
Input Impedance	6Ω

GENERAL

Power Consumption	15W
Power Supply	AC 110V/120V/220V/240V, 50/60 Hz Battery: 12V (8 × UM-1, "D" size battery) Car battery: optional car adaptor
Dimensions (W × H × D)	395 mm × 273 mm × 209 mm
Weight	5 kg (without batteries) 5.8 kg (with batteries)

* Specifications are subject to change without notice for further improvement.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan

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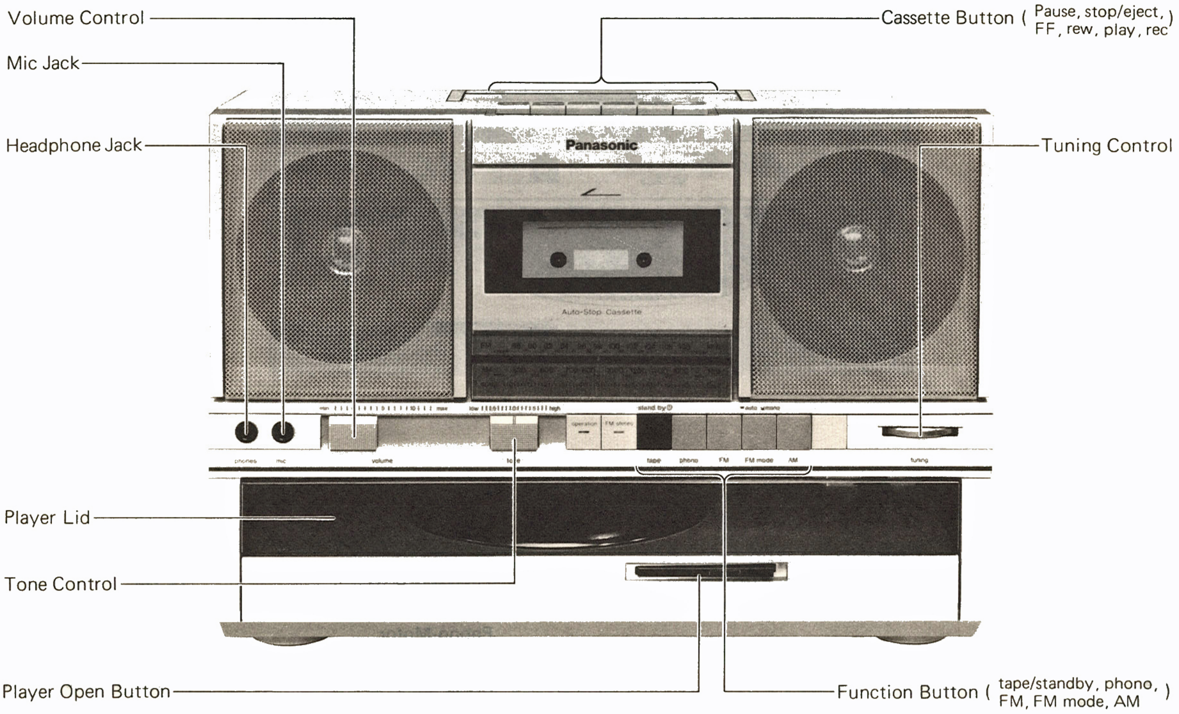
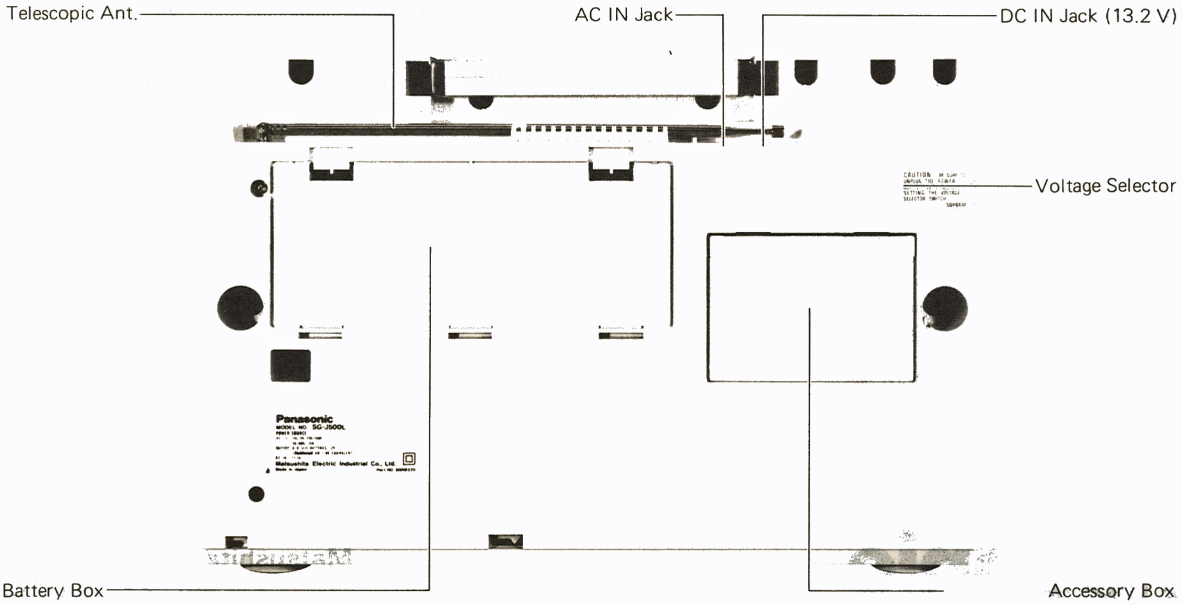
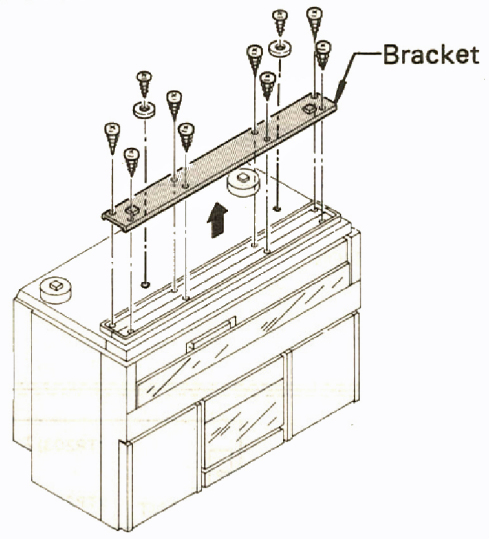
LOCATION OF CONTROLS


Volume Control
Mic Jack
Headphone Jack
Cassette Button (Pause, stop/eject, FF, rew, play, rec)
Tuning Control
Panasonic
Auto-Stop Cassette
Player Lid
Tone Control
Player Open Button
Function Button (tape/standby, phono, FM, FM mode, AM)

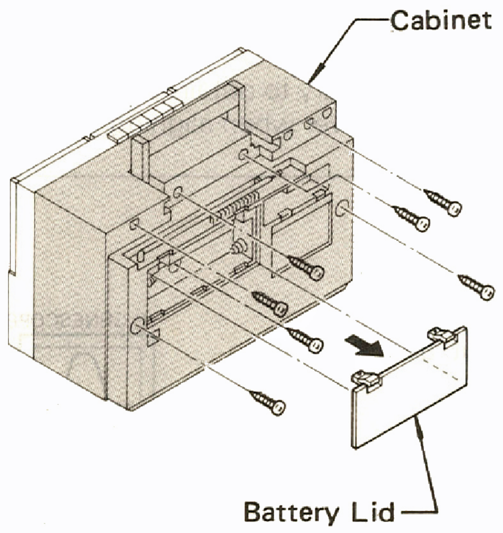

Telescopic Ant.
AC IN Jack
DC IN Jack (13.2 V)
Voltage Selector
Panasonic
Battery Box
Accessory Box

DISASSEMBLY INSTRUCTIONS

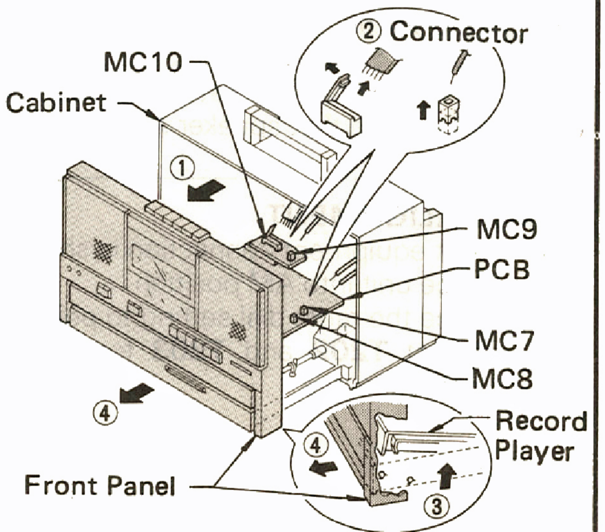
❶ Remove the Power Cord, Battery and Bracket



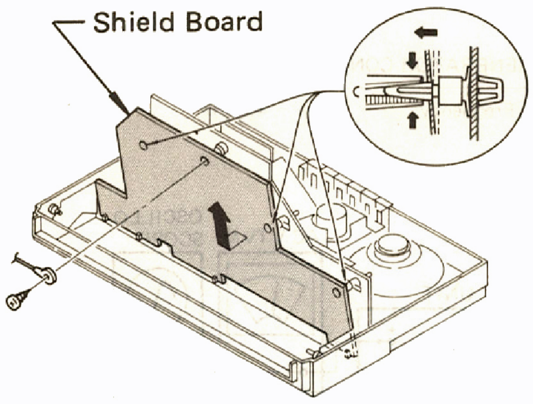
❷ Remove the Cabinet


Cabinet
Battery Lid

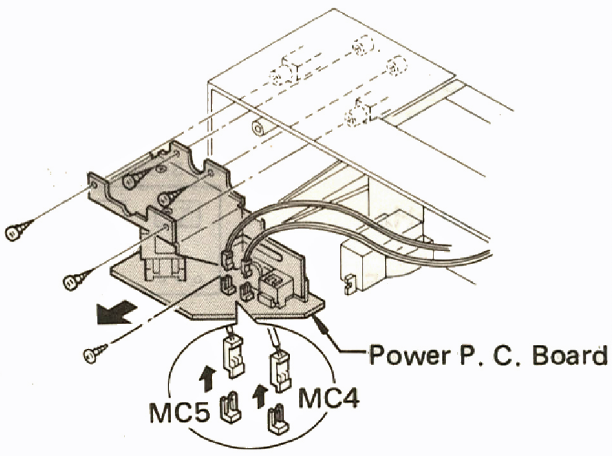
❸ Remove the Front Panel


② Connector
MC10
Cabinet
①
MC9
PCB
MC7
MC8
④
Record Player
④
③
Front Panel

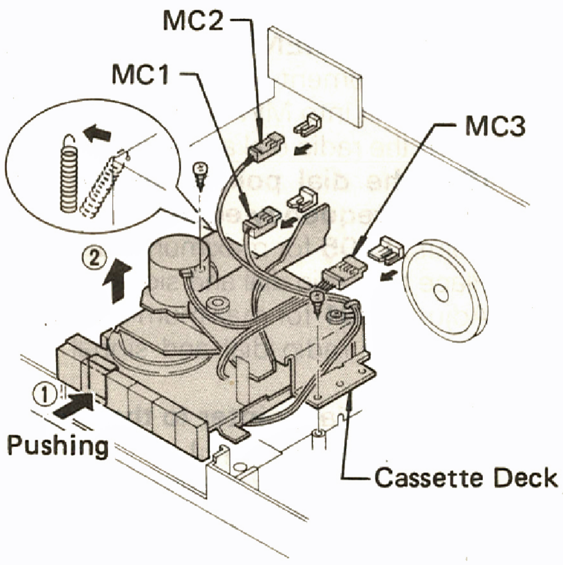
❹ Remove the Shield Board


Shield Board

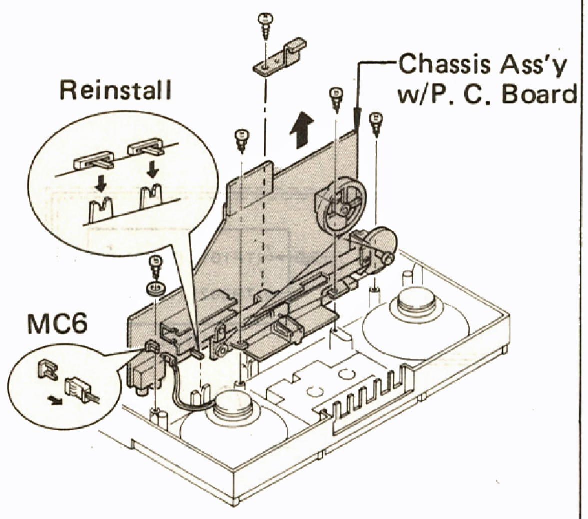
❺ Remove the Power P. C. Board


Power P. C. Board
MC5
MC4

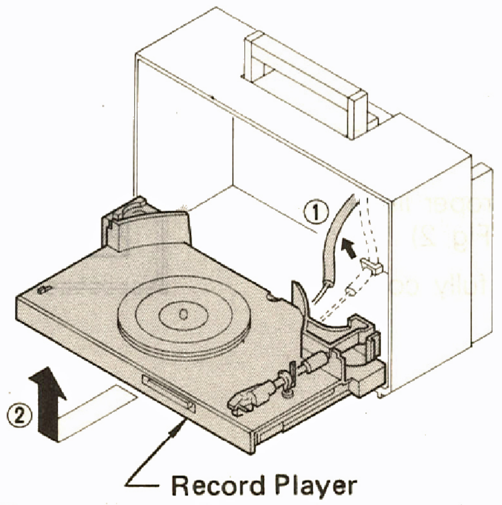
❻ Remove the Cassette Deck


MC2
MC1
MC3
②
①
Pushing
Cassette Deck

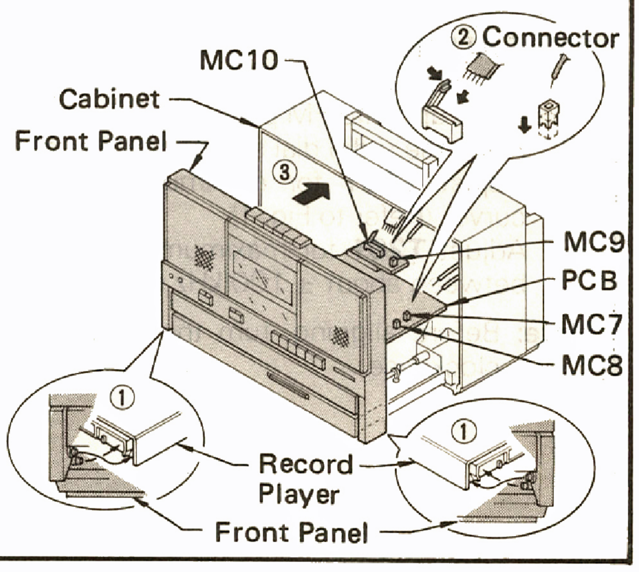
❼ Remove the Chassis Ass'y


Reinstall
Chassis Ass'y w/P. C. Board
MC6

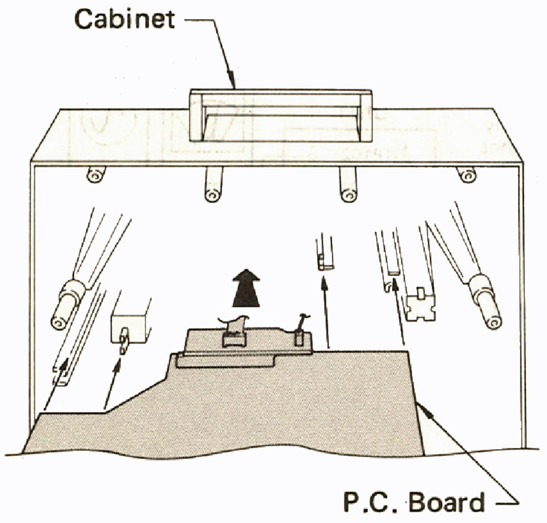
❽ Remove the Record Player


①
②
Record Player

❾ Reinstall the Front Panel-1


② Connector
MC10
Cabinet
Front Panel
③
MC9
PCB
MC7
MC8
①
Record Player
①
Front Panel

❿ Reinstall the Front Panel-2


Cabinet
P.C. Board

- **To Replace the Parts on P. C. Board**
  - **Main P. C. Board** . . . . .Refer to ❶ ~ ❹
  - **Power P. C. Board** . . . . .Refer to ❶ ~ ❸, ❺
- **To Remove the Cassette Deck** . . . . .Refer to ❶ ~ ❸, ❻
- **To Remove the Chassis Ass'y** . . . . .Refer to ❶ ~ ❸, ❹, ❻, ❼
- **To Remove the Player** . . . . .Refer to ❶ ~ ❸, ❽
- **To Reinstall the Front Panel** . . . . .Refer to ❾, ❿, ❷, ❶

MEASUREMENTS AND ADJUSTMENT

■ Radio

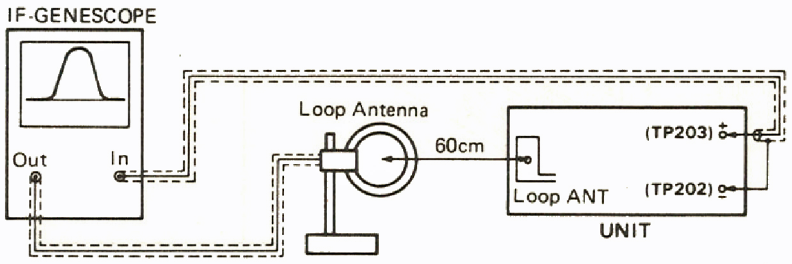
Control Positions

- ● Volume Control.................................. Audible level of speaker sound (AM-RF, FM-RF); Minimum (AM-IF, FM-IF).
- ● Tone Control...................................... Maximum
- ● FM Mode Selector............................ FM AUTO
- ● Output of signal generator should be no higher than necessary to obtain output reading.
- ● Make certain that speaker system is connected to the receiver when aligning (or use relivant dummy load resistors).

AM-IF ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into AM position.
3. Place the radio dial setting to point of noninterference.
4. Adjust **T202** and **T203** for maximum output and symmetrical curve.

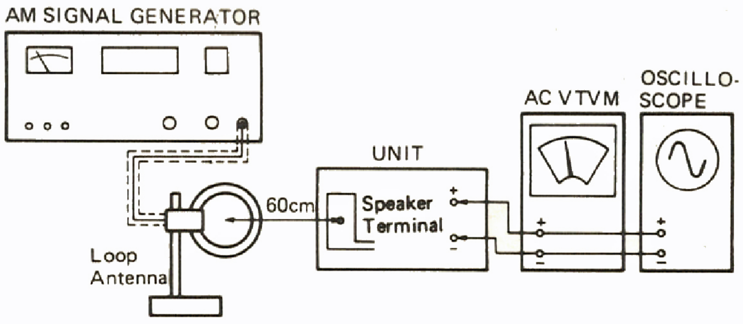
GENESCOPE CONDITION
Frequency 450kHz


IF-GENESCOPE
Out
In
Loop Antenna
60cm
(TP203)
(TP202)
Loop ANT
UNIT

MW-RF ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into MW position.
3. Place the radio dial and signal generator setting to **513 kHz.** **(Set the dial pointer to the left end of the scale or lower frequency edge.)**
4. Adjust **L205** for maximum output.
5. Place the radio dial and signal generator setting to **600 kHz.**
6. Adjust **L201** for maximum output.
7. Place the radio dial and signal generator setting to **1645 kHz.** **(Set the dial pointer to the right end of the scale or upper frequency edge.)**
8. Adjust **CT202** for maximum output.
9. Place the radio dial and signal generator setting to **1645 kHz.**
10. Adjust **CT201** for maximum output.
11. Repeat steps 3. ~ 10.

AM SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation Frequency . . . . 400 Hz

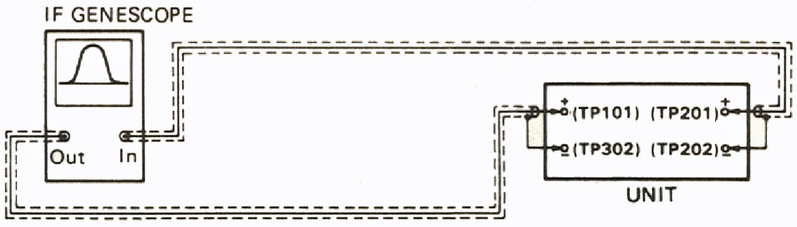

AM SIGNAL GENERATOR
UNIT
AC VTVM
OSCILLO-SCOPE
60cm
Speaker Terminal
Loop Antenna

FM-IF ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into FM position.
3. Place the radio dial setting to point of noninterference.
4. Adjust **T101** for maximum amplitude and symmetrical curve. (Refer to Fig. 1)
5. Adjust **T201** for maximum amplitude and proper linearity between about ±100 kHz markers. (Refer to Fig. 2)

Note: Before aligning, turn the corest of **T201** fully counter-clockwise.

GENESCOPE CONDITION
Frequency . . . . 10.7 MHz


IF GENESCOPE
Out
In
(TP101)
(TP201)
(TP302)
(TP202)
UNIT

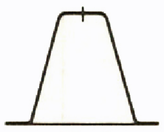


Fig. 1

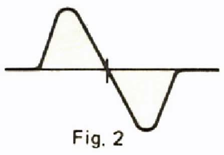


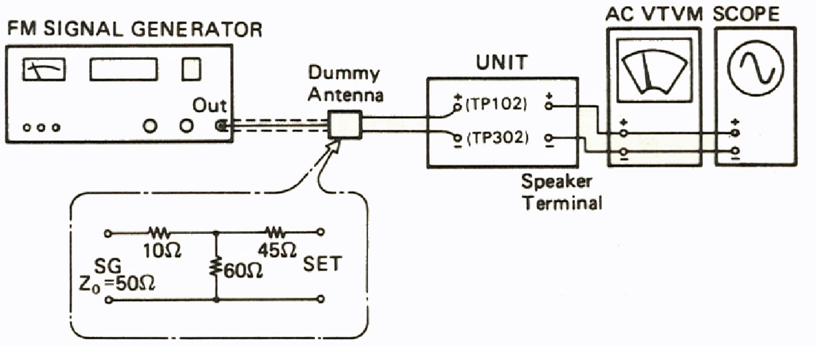
Fig. 2

FM-RF ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into FM position.
3. Place the radio dial and signal generator setting to **87.3 MHz.** **(Set the dial pointer to the left end of the scale or lower frequency edge.)**
4. Adjust **L101** and **L102** for maximum output.
5. Place the radio dial and signal generator setting to **108.6 MHz.** **(Set the dial pointer to the right end of the scale or upper frequency edge.)**
6. Adjust **CT101** and **CT102** for maximum output.
7. Repeat steps 3. ~ 6.

Note: As three output reading will be present, adjustments must be made at center frequency.

FM SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation Frequency . . . . 400 Hz


FM SIGNAL GENERATOR
Out
Dummy Antenna
UNIT
(TP102)
(TP302)
AC VTVM
OSCILLO-SCOPE
Speaker Terminal
SG
Z_0=50Ω
10Ω
45Ω
60Ω
SET

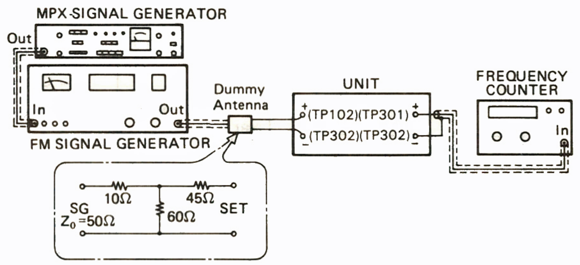
MEASUREMENTS AND ADJUSTMENT

■ Radio

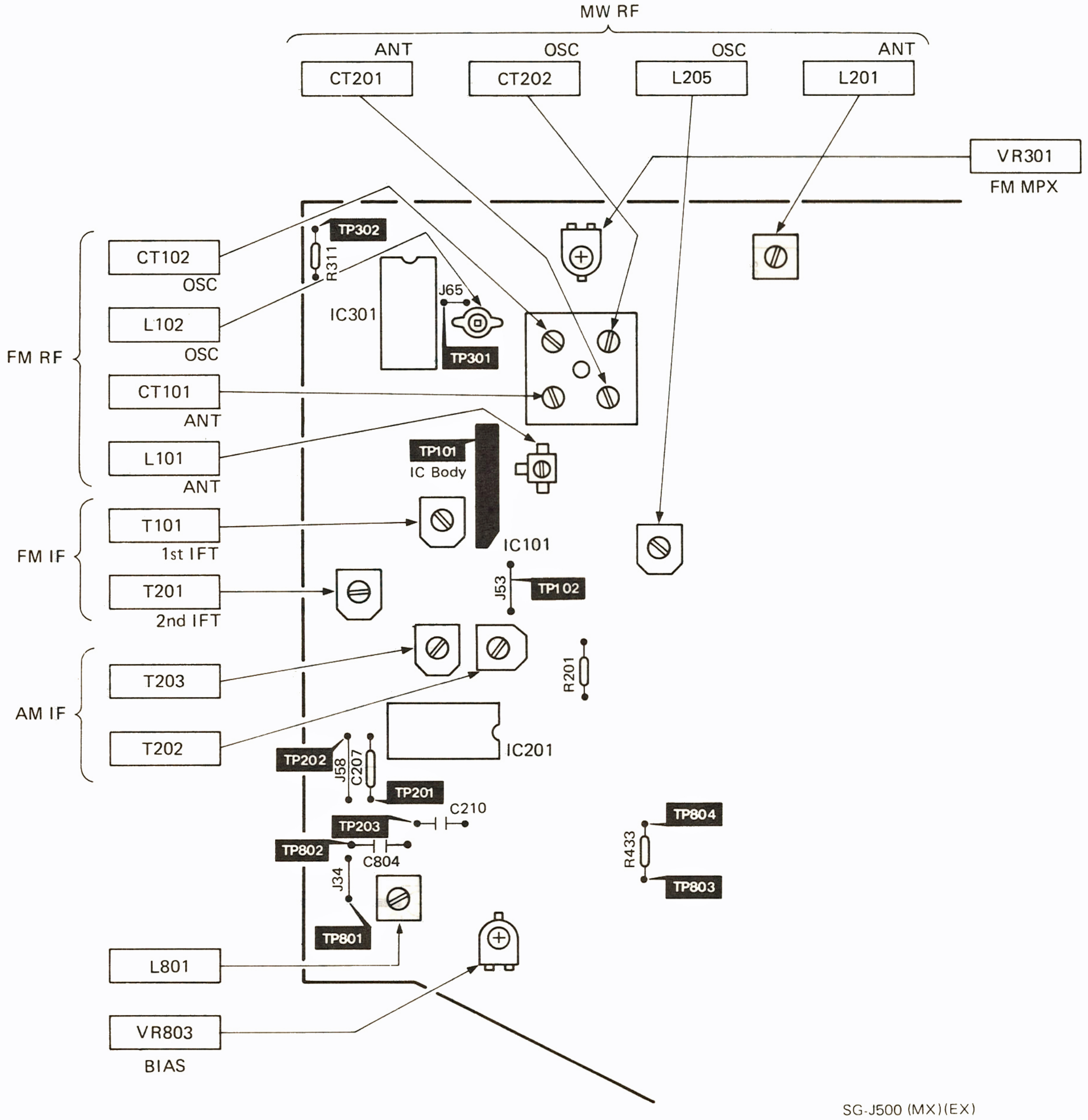
FM STEREO ALIGNMENT (FREE RUN)

1. Test equipment connection is shown in figure.
2. Place unit into FM AUTO position.
3. Place the radio dial and signal generator setting to **98 MHz.**
4. Adjust **VR301** for **19 kHz** ±**50 Hz** on frequency counter reading.
5. Tune a stereo broadcast and confirm the frequency stays at **19 kHz.**

STEREO SIGNAL GENERATOR CONDITION
Modulation 0%
Pilot 9%
FM SIGNAL GENERATOR CONDITION
Output Level . . . . 60 dB


MPX-SIGNAL GENERATOR
Out
In
Out
FM SIGNAL GENERATOR
Dummy
Antenna
UNIT
(TP102)(TP301)
(TP302)(TP302)
FREQUENCY
COUNTER
In
10Ω
45Ω
SG
Z₀=50Ω
60Ω
SET

ADJUSTMENT POINTS

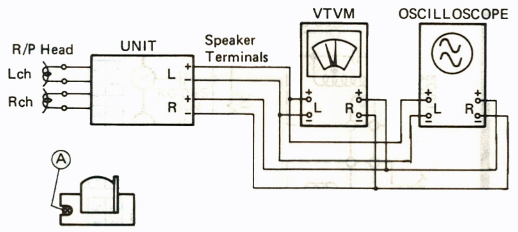

MW RF
ANT
OSC
OSC
ANT
CT201
CT202
L205
L201
VR301
FM MPX
FM RF
CT102
OSC
L102
OSC
CT101
ANT
L101
ANT
FM IF
T101
1st IFT
T201
2nd IFT
AM IF
T203
T202
L801
VR803
BIAS
TP302
R311
IC301
J65
TP301
TP101
IC Body
IC101
J53
TP102
R201
IC201
TP202
J58
C207
TP201
C210
TP203
TP802
C804
J34
TP801
R433
TP804
TP803

MEASUREMENTS AND ADJUSTMENT

■ Tape

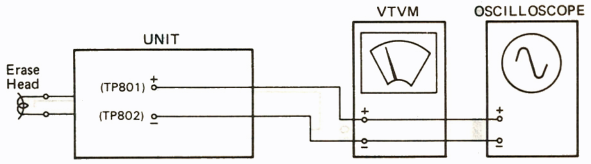
HEAD AZIMUTH ALIGNMENT

1. Test equipment connection is shown in figure.
2. Playback test tape QZZCAC. (10 kHz, –20 dB)
3. Adjust screw Ⓐ for maximum indication for equal output on both channels.
4. After alignment, lock the head adjust screw Ⓐ with lacquer.

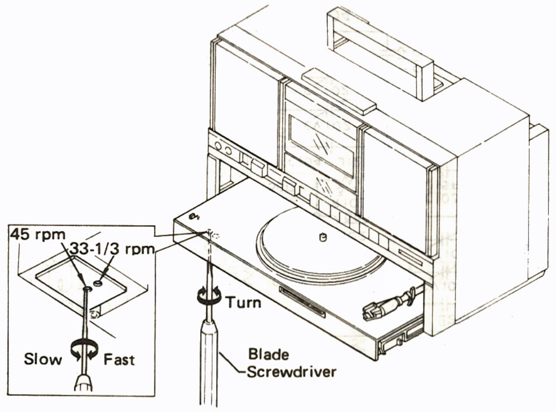

R/P Head
Lch
Rch
UNIT
L
R
Speaker
Terminals
VTVM
L
R
OSCILLOSCOPE
L
R
Ⓐ

ERASE BIAS ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into TAPE position.
3. Place cassette deck into recording mode.
4. Adjust **VR803** for **10.5V** ±**0.5V** on VTVM.


UNIT
Erase
Head
(TP801)
(TP802)
VTVM
OSCILLOSCOPE

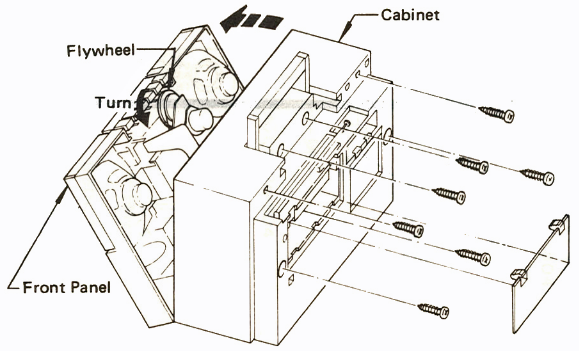
PHONO MOTOR SPEED ADJUSTMENT


45 rpm
33-1/3 rpm
Slow
Fast
Turn
Blade
Screwdriver

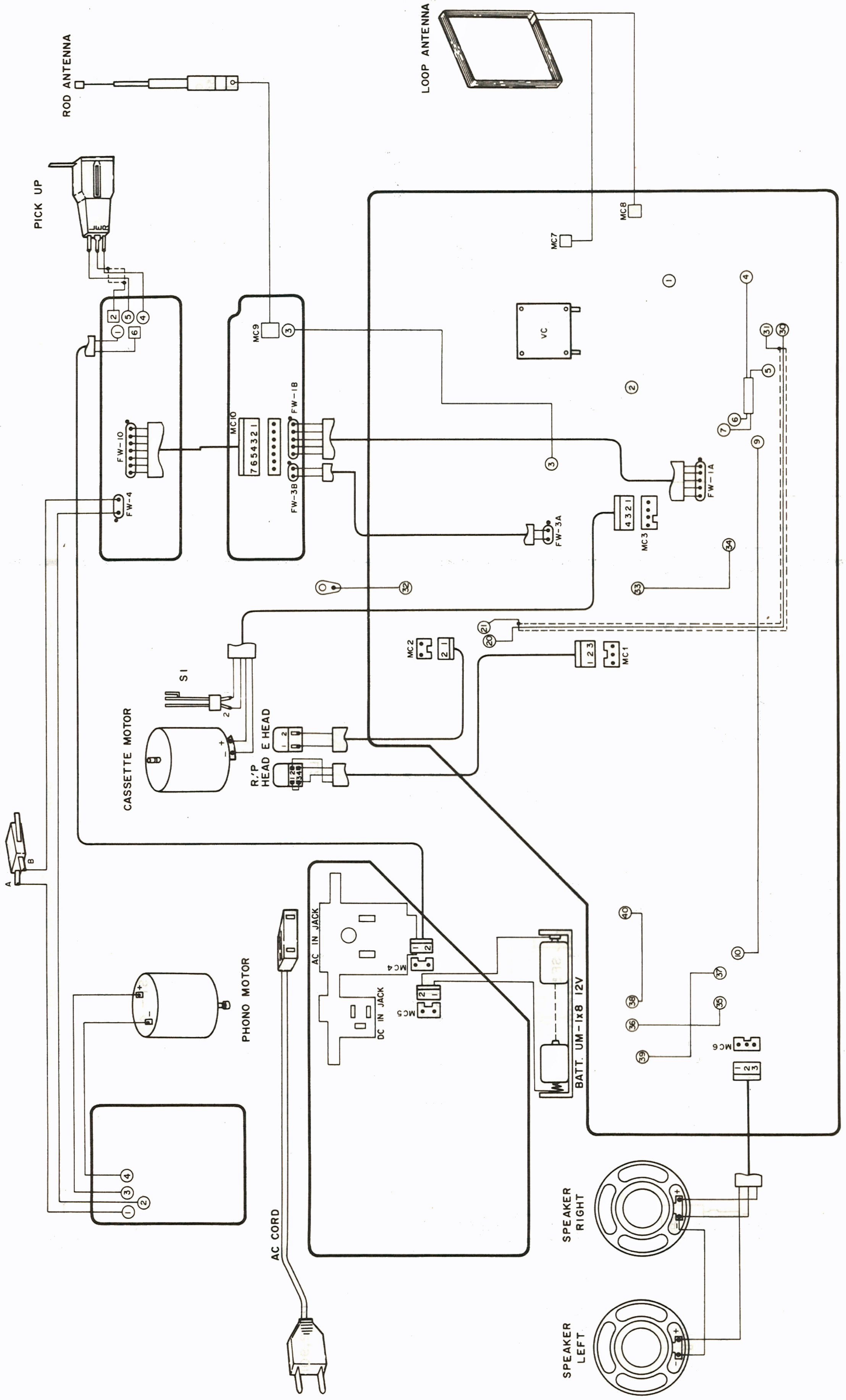
TAPE DECK SERVICE AID

When the cassette tape is caught around the capstan shaft:

Remove 7 screws on the cabinet, and open the front panel, then turn the flywheel counterclockwise.


Cabinet
Flywheel
Turn
Front Panel

WIRING CONNECTION



REPLACEMENT PARTS LIST

NOTE:

1. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. Parts No. listed in this Parts List are Service Parts.

Numbering System of Resister

Type	Wattage	Tolerance	Value
Three Letters	One or Two Letters	Two or Three Letters	Three or Four Letters

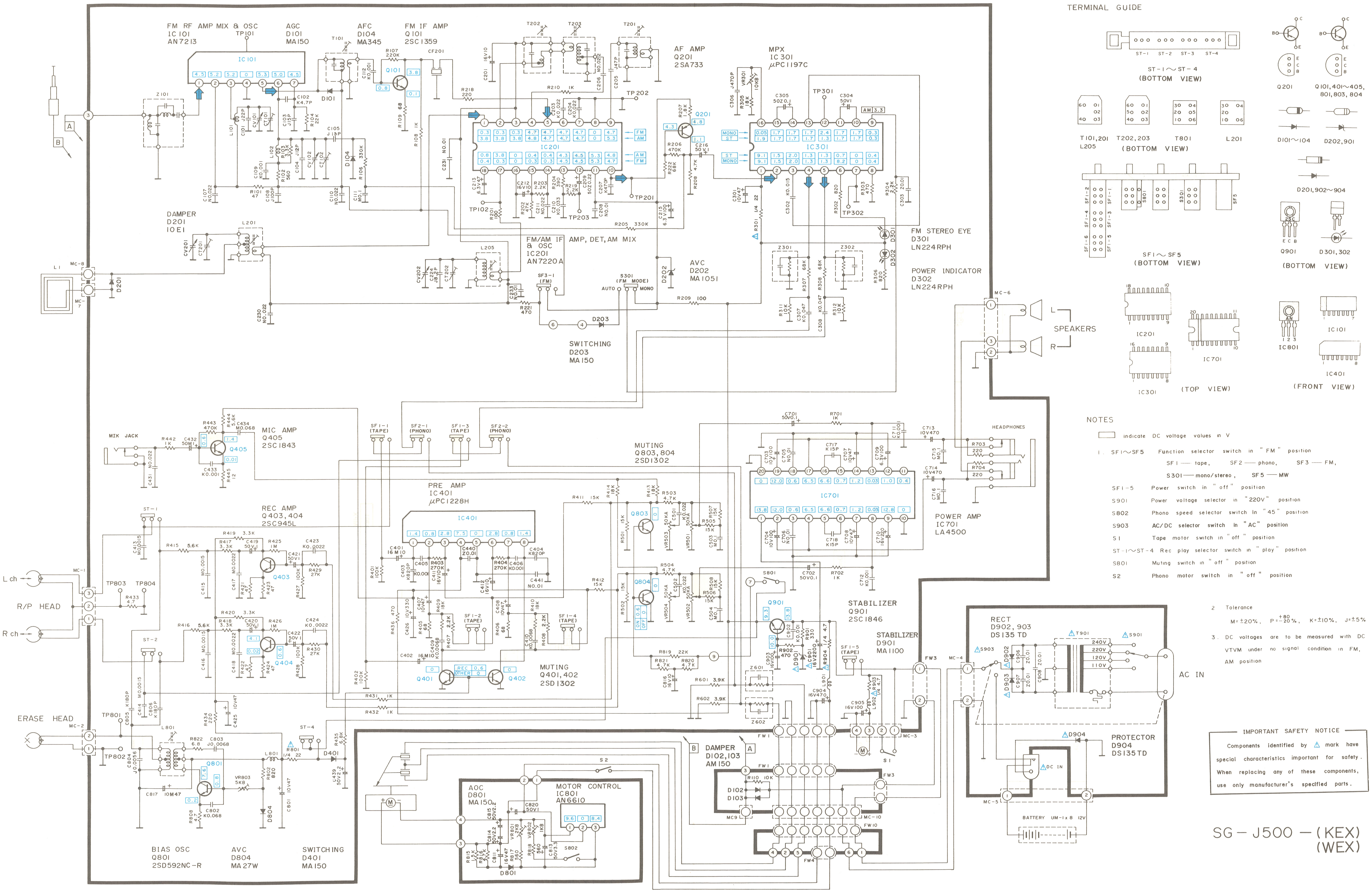
Example:

E R D	2 5	T J	1 0 1

Resistor Type		Wattage		Tolerance	
ERD:	Carbon Film	1:	1W	F:	±1%
ERC:	Solid	2:	2W	J:	±5%
ERX:	Metal Film	12:	1/2W	K:	±10%
ERG:	Metal Oxide Film	18:	1/8W		
ERO:	High Stability Metal Film	25:	1/4W		
ERF:	Flaneproof Wire-Wound Bath-Tube				
ERQ:	Fuse Type Metal Film	50:	1/2W		
RRD:	Chip	2F:	1/4W		

Ref. No.	Part No.	Description (Unit: Ω)
	RESISTORS	
R101	ERD25FJ470	47
R102	ERD25FJ561	560
R103	ERD25FJ332	3.3k
R104	ERD25TJ223	22k
R106	ERD25TJ334	330k
R107	ERD25TJ224	220k
R108	ERD25FJ102	1k
R109	ERD25FJ680	68
R110	ERD25FJ103	10k
R201	ERD25FJ101	100
R202	ERD25TJ473	47k
R203	ERD25FJ222	2.2k
R204	ERD25FJ391	390
R205	ERD25TJ334	330k
R206	ERD25TJ474	470k
R207	ERD25FJ182	1.8k
R208	ERD25FJ472	4.7k
R209	ERD25FJ101	100
R210	ERD25FJ102	1k
R216	ERD25FJ470	47
R218	ERD25FJ221	220
R219	ERD25FJ472	4.7k
R221	ERD25FJ471	470
R222	ERD25TJ683	68k
R301	ERD25FJ220	22
R302	ERD25FJ821	820
R303	ERD25FJ471	470
R304	ERD25FJ222	2.2k
R305	ERD25TJ183	18k
R306	ERD25FJ821	820
R307	ERD25TJ683	68k
R308	ERD25TJ683	68k
R311	ERD25FJ103	10k
R312	ERD25FJ103	10k
R401	ERD25TJ104	100k
R402	ERD25TJ104	100k
R403	ERD25TJ274	270k
R404	ERD25TJ274	270k
R405	ERD25FJ680	68
R406	ERD25FJ680	68
R407	ERD25FJ222	2.2k
R408	ERD25FJ222	2.2k
R409	ERD25TJ183	18k
R410	ERD25TJ183	18k
R411	ERD25TJ153	15k
R412	ERD25TJ153	15k
R413	ERD25TJ183	18k
R414	ERD25TJ183	18k
R415	ERD25FJ562	5.6k
R416	ERD25FJ562	5.6k
R417	ERD25FJ332	3.3k
R418	ERD25FJ332	3.3k
R419	ERD25FJ332	3.3k
R420	ERD25FJ332	3.3k
R421	ERD25FJ470	47
R422	ERD25FJ470	47
R423	ERD25FJ470	47
R424	ERD25FJ470	47
R425	ERD25TJ105	1M
R426	ERD25TJ105	1M
R427	ERD25TJ104	100k
R428	ERD25TJ104	100k
R429	ERD25TJ273	27k
R430	ERD25TJ273	27k
R431	ERD25FJ102	1k
R432	ERD25FJ102	1k
R433	ERD25FJ4R7	4.7
R434	ERD25FJ221	220
R435	ERD25FJ682	6.8k
R436	ERD25FJ471	470
R442	ERD25FJ102	1k
R443	ERD25TJ474	470k
R444	ERD25FJ562	5.6k
R445	ERD25FJ120	12
R501	ERD25TJ153	15k
R502	ERD25TJ153	15k
R503	ERD25FJ472	4.7k
R504	ERD25FJ472	4.7k
R505	ERD25TJ153	15k
R506	ERD25TJ153	15k
R507	ERD25TJ153	15k
R508	ERD25TJ153	15k
R601	ERD25FJ392	3.9k
R602	ERD25FJ392	3.9k
R701	ERD25FJ102	1k
R702	ERD25FJ102	1k
R703	ERD25FJ221	220
R704	ERD25FJ221	220
R801	⚠ ERD2FCG220P	22
R802	ERD25FJ821	820
R805	ERD25TJ393	39k
R808	ERD25FJ4R7	4.7
R815	ERD25FJ152	1.5k
R816	ERD25FJ472	4.7k
R817	ERD25FJ561	560
R818	ERD25FJ561	560
R819	ERD25TJ223	22k
R820	ERD25FJ472	4.7k
R821	ERD25FJ472	4.7k
R822	ERD25FJ6R8	6.8
R901	ERD25FJ331	330
R902	ERD25FJ471	470
R903	⚠ ERD2FCJ4R7P	4.7
R904	⚠ ERD2FCJ4R7P	4.7

SCHEMATIC DIAGRAM


FM RF AMP MIX & OSC
IC101
AN7213
AGC
D101
MA150
AFC
D104
MA345
FM IF AMP
Q101
2SC1359
AF AMP
Q201
2SA733
MPX
IC301
μPC1197C
DAMPER
D201
10E1
FM/AM IF AMP, DET, AM MIX
& OSC
IC201
AN7220A
AVC
D202
MA1051
FM STEREO EYE
D301
LN224RPH
POWER INDICATOR
D302
LN224RPH
SWITCHING
D203
MA150
SPEAKERS
L
R
HEADPHONES
MIK JACK
MIC AMP
Q405
2SC1843
MUTING
Q803, 804
2SD1302
PRE AMP
IC401
μPC1228H
REC AMP
Q403, 404
2SC945L
POWER AMP
IC701
LA4500
STABILIZER
Q901
2SC1846
STABILIZER
D901
MA1100
RECT
D902, 903
DS135TD
AC IN
PROTECTOR
D904
DS135TD
BATTERY UM-1×8 12V
DC IN
L ch
R/P HEAD
R ch
ERASE HEAD
MUTING
Q401, 402
2SD1302
DAMPER
D102, 103
AM150
AOC
D801
MA150
MOTOR CONTROL
IC801
AN6610
BIAS OSC
Q801
2SD592NC-R
AVC
D804
MA27W
SWITCHING
D401
MA150
TERMINAL GUIDE
ST-1 ~ ST-4
(BOTTOM VIEW)
T101, 201
L205
T202, 203
T801
L201
(BOTTOM VIEW)
Q201
Q101, 401~405, 801, 803, 804
D101~104
D202, 901
D201, 902~904
SF1 ~ SF5
(BOTTOM VIEW)
Q901
D301, 302
(BOTTOM VIEW)
IC201
IC701
IC301
(TOP VIEW)
IC801
IC101
IC401
(FRONT VIEW)

NOTES

▭ indicate DC voltage values in V

1. SF1~SF5 Function selector switch in " FM " position
   SF1 — tape, SF2 — phono, SF3 — FM,
   S301 — mono/stereo, SF5 — MW

SF1-5	Power switch in " off " position
S901	Power voltage selector in " 220V " position
S802	Phono speed selector switch in " 45 " position
S903	AC/DC selector switch in " AC " position
S1	Tape motor switch in " off " position
ST-1~ST-4	Rec play selector switch in " play " position
S801	Muting switch in " off " position
S2	Phono motor switch in " off " position

2 Tolerance

$M=\pm 20\%$, $P=^{+80}_{-20}\%$, $K=\pm 10\%$, $J=\pm 5\%$

3. DC voltages are to be measured with DC VTVM under no signal condition in FM, AM position

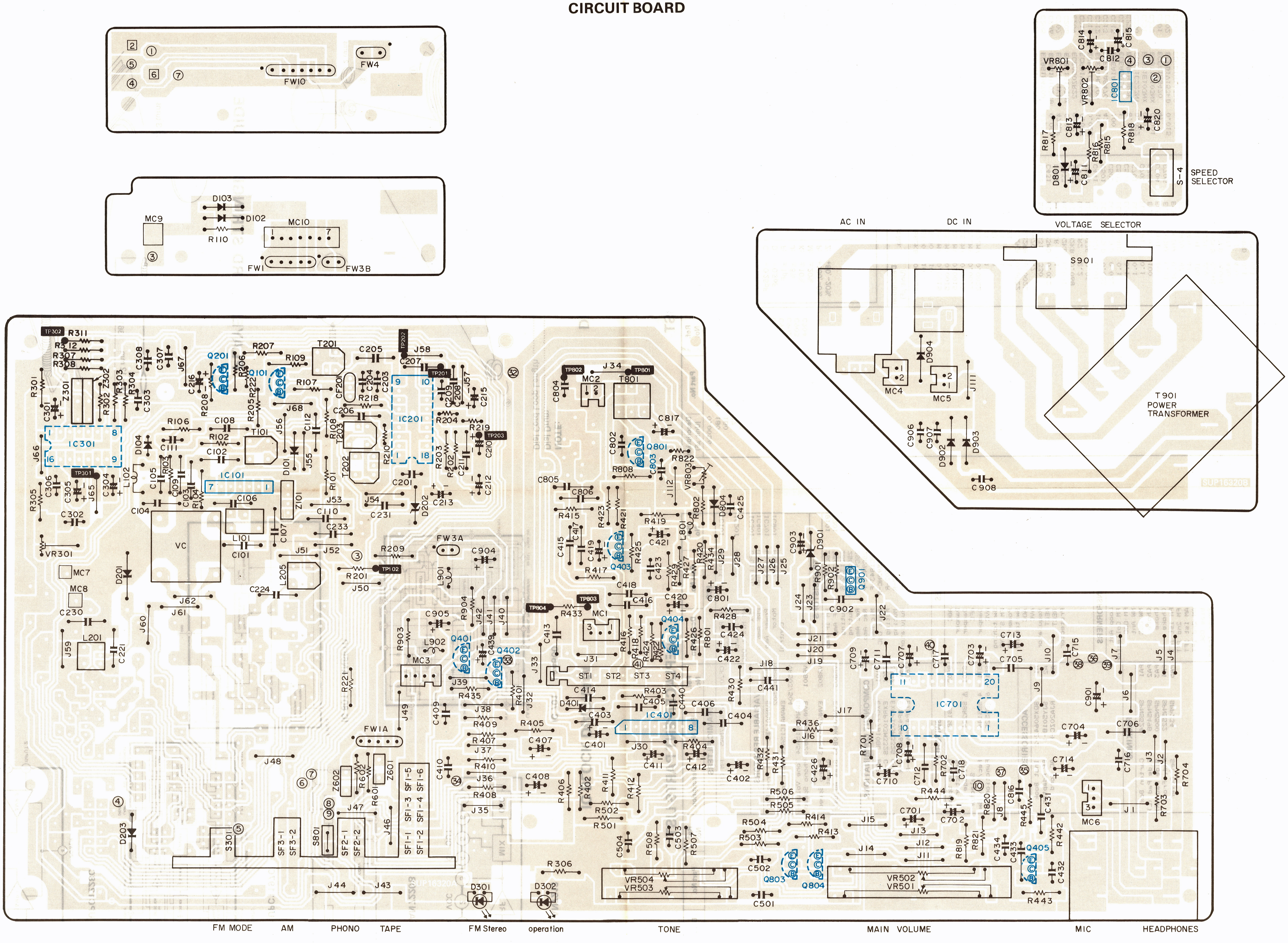
IMPORTANT SAFETY NOTICE

Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

SG – J500 – (KEX)
(WEX)

* This diagram might be modified without notice for further development of technology.

CIRCUIT BOARD


SPEED SELECTOR
S-4
IC801
VR801
VR802
AC IN
DC IN
VOLTAGE SELECTOR
S901
T901 POWER TRANSFORMER
FW10
FW4
FW1
FW3B
MC9
MC10
D103
D102
R110
IC101
IC201
IC301
IC401
IC701
VC
FW3A
FW1A
ST1
ST2
ST3
ST4
S301
SF3-1
SF3-2
S801
SF2-1
SF2-2
SF1-1
SF1-2
SF1-3
SF1-4
SF1-5
SF1-6
VR504
VR503
VR502
VR501
D301
D302
FM MODE
AM
PHONO
TAPE
FM Stereo
operation
TONE
MAIN VOLUME
MIC
HEADPHONES

REPLACEMENT PARTS LIST

Numbering System of Capacitor

Type	Voltage	Value	Tolerance
Four Letters	One or Two Letters	Two or Five Letters	One or Two Letters

Example:

E C K D　　1 H　　3 3 3　　M D

Capacitor Type		Voltage		Tolerance	
ECCD:	Temperature Compensating Ceramic			C:	±0.25pF
ECKD:	High dielectric Constant Ceramic	KC:	400V	D:	±0.5pF
ECQM:	Polyester	OJ:	6.3V	F:	±1pF
ECQP:	Polypropylene Film	1A:	10V	J:	±5%
ECQS:	Polystylene Film	1C:	16V	K:	±10%
ECFD:	Semiconductor Ceramic	1E:	25V	M:	±20%
ECEA:	Electrolytic	1H:	50V	P:	+100, −0%
ECEB:	Electrolytic	1V:	63V	Z:	+80, −20%
ECET:	Electrolytic	2H:	100V		
ECSF:	Tantalum	25:	25V		
ECUX:	Chip	50:	50V		
ECBS:	Ceramic				
ECBT:	Ceramic				

CAPACITORS

Ref. No.	Part No.	Description (Unit: µF)
C101	ECBS1H220J	22pF
C102	ECBS1H4R7K	4.7pF
C103	ECBS1H150J	15pF
C104	ECBS1H120J	12pF
C105	ECBS1H150J	15pF
C106	ECBS1H102KB	0.001
C107	ECBT1C223NY	0.022
C108	ECBS1H101J	100pF
C109	ECBS1H102KB	0.001
C110	ECBT1C223NY	0.022
C111	ECFD1E104MD	0.1
C112	ECBS1H102KB	0.001
C201	ECFD1V223KD	0.022
C203	ECFD1V223KD	0.022
C204	ECFD1V223KD	0.022
C205	ECBS1H470J	47pF
C206	ECBS1H102KB	0.001
C207	ECS1H471KB	470pF
C208	ECBT1E103NX	0.01
C209	ECEA50ZR22	0.22
C210	ECFD1V333KD	0.033
C211	ECBT1C223NY	0.022
C212	ECEA1HS100	10
C213	ECEA1AS470	47
C215	ECEA1AS101	100
C216	ECEA50Z1	1
C224	ECBS1H8R2K	8.2pF
C230	ECBT1C223NY	0.022
C231	ECBT1E103NX	0.01
C233	ECBT1E103NX	0.001
C301	ECEA1AS470	47
C302	ECFD1V153KD	0.015
C303	ECKD1H103ZF	0.01
C304	ECEA50Z1	1
C305	ECEA50ZR1	0.1
C306	ECQP1471JZ	470pF
C307	ECFD1V473KD	0.047
C308	ECFD1V473KD	0.047
C401	ECEA16M10R	10
C402	ECEA16M10R	10
C403	ECBS1H821KB	820pF
C404	ECBS1H821KB	620pF
C405	ECBS1H102KB	0.001
C406	ECBS1H102KB	0.001
C407	ECEA1AS470	47
C408	ECEA1AS470	47
C409	ECKD1H682KB	0.0068
C410	ECKD1H682KB	0.0068
C411	ECEA1HS100	10
C412	ECEA1HS100	10
C413	ECBS1E152MX	0.0015
C414	ECBS1E152MX	0.0015
C415	ECBS1E152MX	0.0015
C416	ECBS1E152MX	0.0015
C417	ECBS1H222MX	0.0022
C418	ECBS1H222MX	0.0022
C419	ECEA50Z1	1
C420	ECEA50Z1	1
C421	ECEA50Z1	1
C422	ECEA50Z1	1
C423	ECKD1H222KB	0.0022
C424	ECKD1H222KB	0.0022
C425	ECEA1AS470	47
C426	ECEA1AS331	330
C431	ECKD1H223MD	0.022
C432	ECEA50M1R	1
C433	ECBS1H102KB	0.001
C434	ECBS1H102KB	0.068
C439	ECEA50Z2R2	2.2
C440	ECKD1H103ZF	0.01
C441	ECKD1H103ZF	0.01
C501	ECFD1V223KD	0.022
C502	ECFD1V223KD	0.022
C503	ECFD1E104MD	0.1
C504	ECFD1E104MD	0.1
C701	ECEA50ZR1	0.1
C702	ECEA50ZR1	0.1
C703	ECEA1AS101	100
C704	ECEA1AS101	100
C705	ECBT1E103NX	0.01
C706	ECBT1E103NX	0.01
C707	ECEA1AS470	47
C708	ECEA1AS470	47
C709	ECEA1AS101	100
C710	ECEA1CS221	220
C711	ECBS1H102KB	0.001
C712	ECBS1H102KB	0.001
C713	ECEA1AS471	470
C714	ECEA1AS471	470
C715	ECFD1E104MD	0.1
C716	ECFD1E104MD	0.1
C717	ECCD1H150KC	15pF
C718	ECCD1H150KC	15pF
C801	ECEA1AS470	47
C802	ECQM1H683KV	0.068
C803	ECQP1682JZ	0.0068
C804	ECQP1562JZ	0.0056
C805	ECBS1H181KB	180
C806	ECBS1H181KB	180
C811	ECEA1ES470	47
C813	ECEA50Z3R3	3.3
C814	ECEA50Z2R2	2.2
C815	ECEA50Z2R2	2.2
C816	ECEA1HS100	10
C820	ECEA50Z1	1
C901	⚠ ECEA1CS222	2200
C902	ECBS1H102KB	0.001
C903	ECEA1ES101	100
C904	ECEA1CS471	470

REPLACEMENT PARTS LIST

ICS

Ref. No.	Part No.	Description
IC101	AN7213	FM RF Amp, Mix & OSC
IC201	AN7220	FM/IF Amp, AM Mix & OSC
IC301	UPC1197C	MPX
IC401	UPC1228H	PRE Amp
IC701	LA4500	Power Amp
IC801	AN6610	Motor Control

TRANSISTORS

Ref. No.	Part No.	Description
Q101	2SC1359-B	FM IF Amp
Q201	2SA733-P1	AF Amp
Q401	2SD1302-R	Muting
Q402	2SD1302-R	Muting
Q403	2SC945L-P	Rec Amp
Q404	2SC945L-P	Rec Amp
Q405	2SC1843-F	Mic Amp
Q801	2SD592NC-R	Bias OSC
Q803	2SD1302-R	Muting
Q804	2SD1302-R	Muting
Q901	2SC1846-R	Rugulator

DIODES

Ref. No.	Part No.	Description
D101	MA162A	AGC
D102	MA162A	Damper
D103	MA162A	Damper
D104	MA345	AFC
D201	SM112	Damper
D202	MA1051	AVC
D203	MA162A	Switching
D301	LN224RPH	FM ST EYE
D302	LN224RPH	Power Ind
D401	MA162A	Switching
D801	MA162A	AOC
D804	MA27WB	AVC
D901	⚠ MA1100	Regulator
D902	⚠ DS135TD	RECT
D903	⚠ DS135TD	RECT
D904	⚠ DS135TD	Protector

COILS AND TRANSFORMERS

Ref. No.	Part No.	Description
L1	SSA12	Loop Ant
L101	SLD4N22-M	FM Collector
L102	SL04P26-Z	FM OSC
L201	SLA2B12-Z	MW Ant
L205	SL02M10-M	MW OSC
L801	SLQU222-2Y	Choke
L901	SLQU270-4Y	Choke
L902	SLQU270-4Y	Choke
T101	RLI4M101-M	FM 1st IFT
T201	RLI4M101-M	FM 2nd IFT
T202	SLI9M102-M	AM 1st IFT
T203	SLI9M202-M	AM 2nd IFT
T801	SL09Z38-K	Bias OSC
T901	⚠ SLT5K54-W	Power Trans

CERAMIC FILTERS

Ref. No.	Part No.	Description
CF201	SVFE107MA5	FM CFT

VARIABLE RESISTORS

Ref. No.	Part No.	Description
VR301	SVNAA14B2-Q	FM Free Run
VR501/502	EWANA1C15A54	Main Volume
VR503/504	EWAMA0C15A54	Tone Volume
VR801	EVNK6AA00B23	Phono Speed Adjust
VR802	EVNK6AA00B13	Phono Speed Adjust
VR803	EVNJ0AA00B53	Bias Adjust

COMPONENT COMBINATIONS

Ref. No.	Part No.	Description
Z101	EXCFF76108L	BPF
Z301	EXRP103M332S	C-R
Z302	EXRP103M332S	C-R
Z601	EXRP470K684S	C-R
Z602	EXRP470K684S	C-R

SWITCHES

Ref. No.	Part No.	Description
S802	SSS138	Phono Speed Selector
S901	⚠ SSR224	Voltage Selector
ST1 – 4	SSS144	Rec/Play Sw
SF1 – 6	SSH528	Function Sw

ACCESSORIES

Ref. No.	Part No.	Description
A1	SQX50642-2	Inst Book
A2	SJY5018-1	EP Adaptor
A3	RJA20ZC-K	AC Cord

PACKINGS

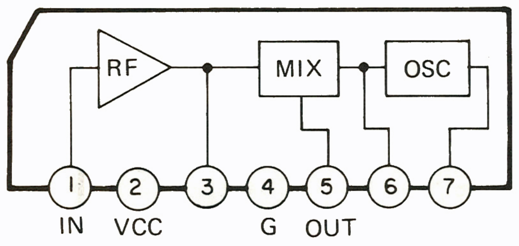
Ref. No.	Part No.	Description
PA1	SPN5524	Carton Box
PA2	SPN5498	Side Pad (L)
PA3	SPN5500	Side Pad (R)
PA4	SPN5522	Pad, Front
PA5	SPP234	Set Cover

VARIABLE CAPACITORS

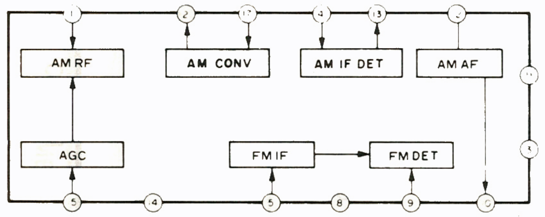
Ref. No.	Part No.	Description
CV101/102/201/202 (CT101/102/201/202)	SVCCB41T111	Variable Capacitor

IC BLOCK DIAGRAM

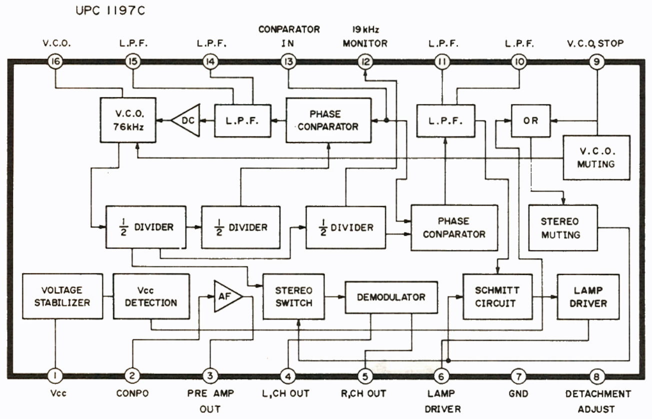
IC 101 AN7213


RF
MIX
OSC
1
2
3
4
5
6
7
IN
VCC
G
OUT

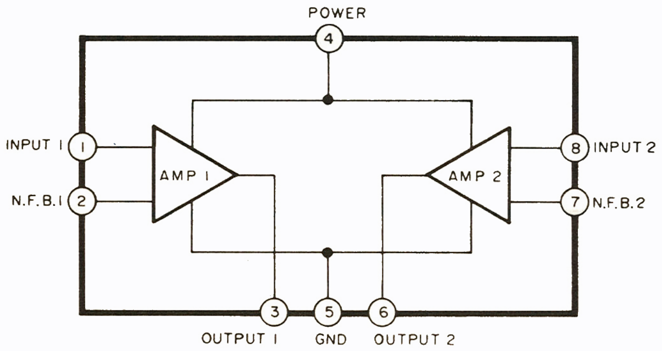
IC 201 AN7220B


AM RF
AM CONV
AM IF DET
AM AF
AGC
FM IF
FM DET
1
2
17
4
13
5
14
8
9
3

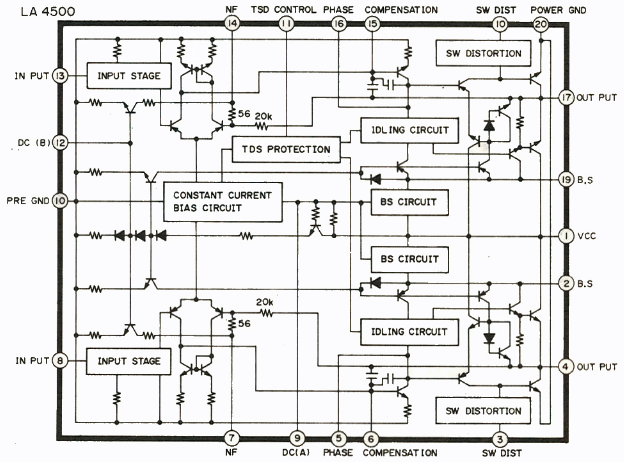
IC301 UPC1197C


UPC 1197C
V.C.O.
L.P.F.
L.P.F.
CONPARATOR IN
19kHz MONITOR
L.P.F.
L.P.F.
V.C.O. STOP
V.C.O. 76kHz
DC
L.P.F.
PHASE CONPARATOR
L.P.F.
OR
V.C.O. MUTING
½ DIVIDER
½ DIVIDER
½ DIVIDER
PHASE CONPARATOR
STEREO MUTING
VOLTAGE STABILIZER
Vcc DETECTION
AF
STEREO SWITCH
DEMODULATOR
SCHMITT CIRCUIT
LAMP DRIVER
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8
Vcc
CONPO
PRE AMP OUT
L,CH OUT
R,CH OUT
LAMP DRIVER
GND
DETACHMENT ADJUST

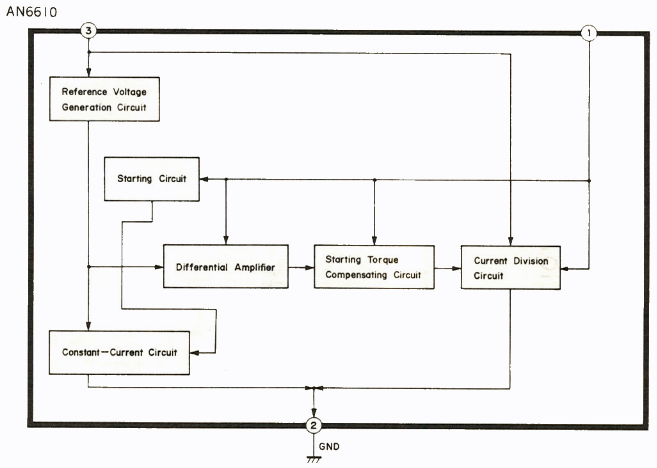
IC401 UPC1228C


POWER
4
INPUT 1
1
N.F.B.1
2
AMP 1
AMP 2
8
INPUT 2
7
N.F.B.2
3
5
6
OUTPUT 1
GND
OUTPUT 2

IC 701 LA4500


LA 4500
NF
TSD CONTROL
PHASE
COMPENSATION
SW DIST
POWER GND
14
11
16
15
10
20
IN PUT
13
DC (B)
12
PRE GND
10
IN PUT
8
INPUT STAGE
INPUT STAGE
SW DISTORTION
SW DISTORTION
IDLING CIRCUIT
IDLING CIRCUIT
TDS PROTECTION
CONSTANT CURRENT BIAS CIRCUIT
BS CIRCUIT
BS CIRCUIT
56
20k
20k
56
17
OUT PUT
19
B.S
1
VCC
2
B.S
4
OUT PUT
7
9
5
6
3
NF
DC(A)
PHASE
COMPENSATION
SW DIST

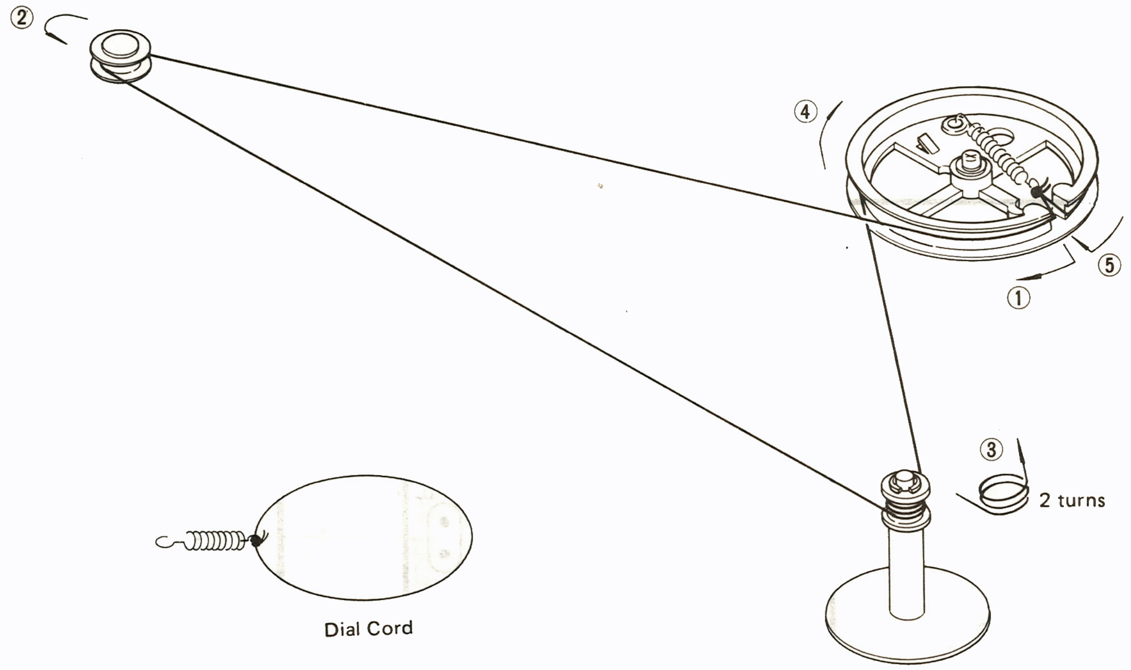
IC 801 AN6610


AN6610
3
1
Reference Voltage Generation Circuit
Starting Circuit
Differential Amplifier
Starting Torque Compensating Circuit
Current Division Circuit
Constant—Current Circuit
2
GND

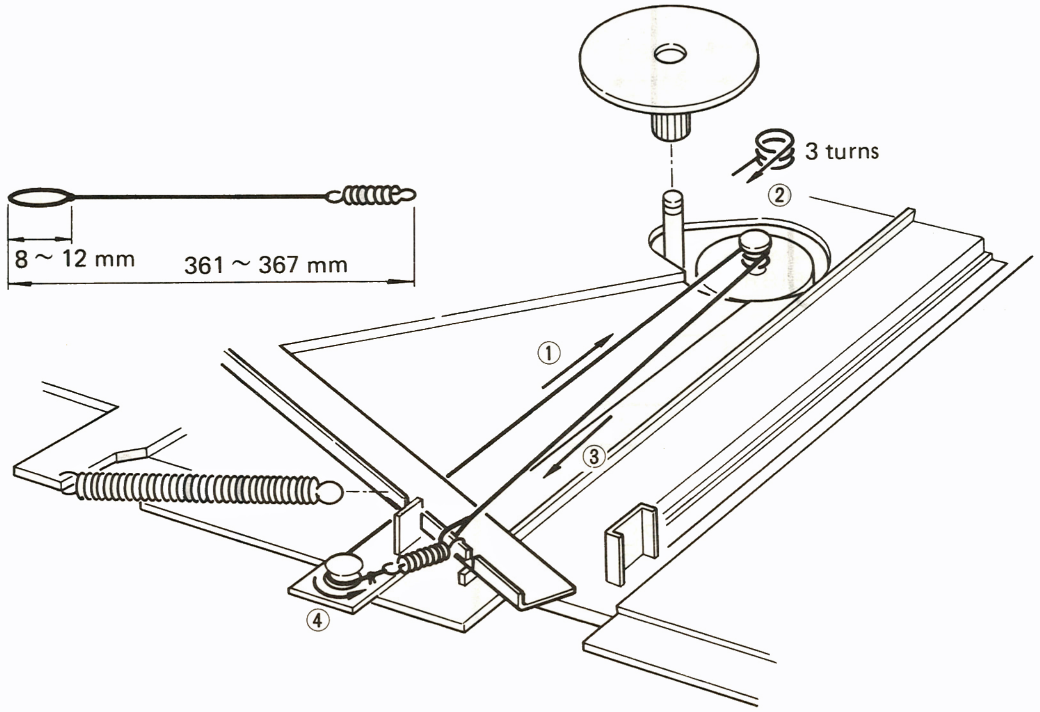
DIAL CORD STRINGING GUIDE

NOTE:

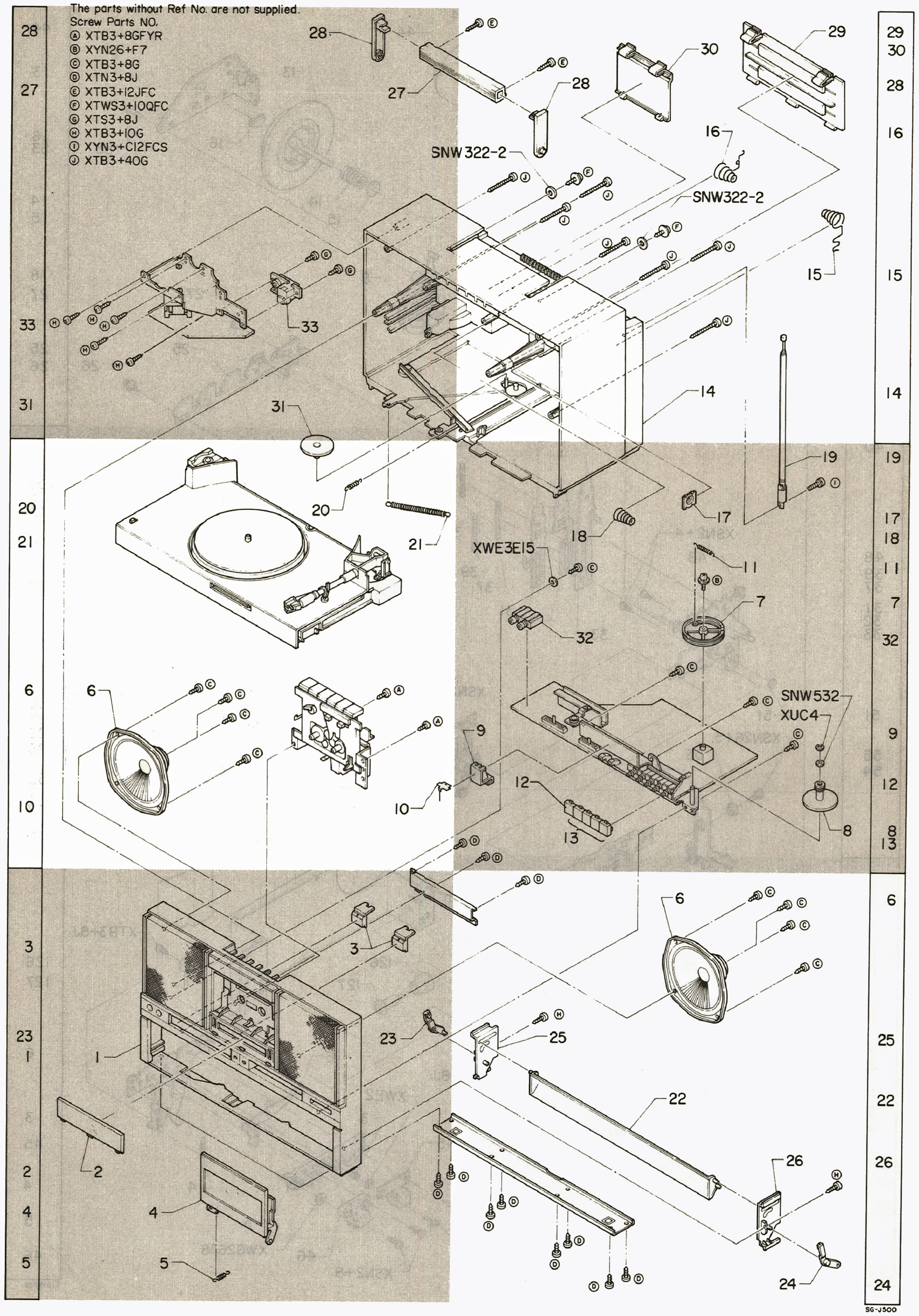
Dial Drum .... Turn Fully Clockwise
Dial Cord Loop Length .... 80 cm


②
④
⑤
①
③
2 turns
Dial Cord

PLAYER CORD STRINGING GUIDE


3 turns
②
8 ~ 12 mm
361 ~ 367 mm
①
③
④

PARTS LOCATION OF CABINET AND CHASSIS



The parts without Ref No. are not supplied.

Screw Parts NO.

Ⓐ XTB3+8GFYR
Ⓑ XYN26+F7
Ⓒ XTB3+8G
Ⓓ XTN3+8J
Ⓔ XTB3+12JFC
Ⓕ XTWS3+10QFC
Ⓖ XTS3+8J
Ⓗ XTB3+10G
Ⓘ XYN3+C12FCS
Ⓙ XTB3+40G

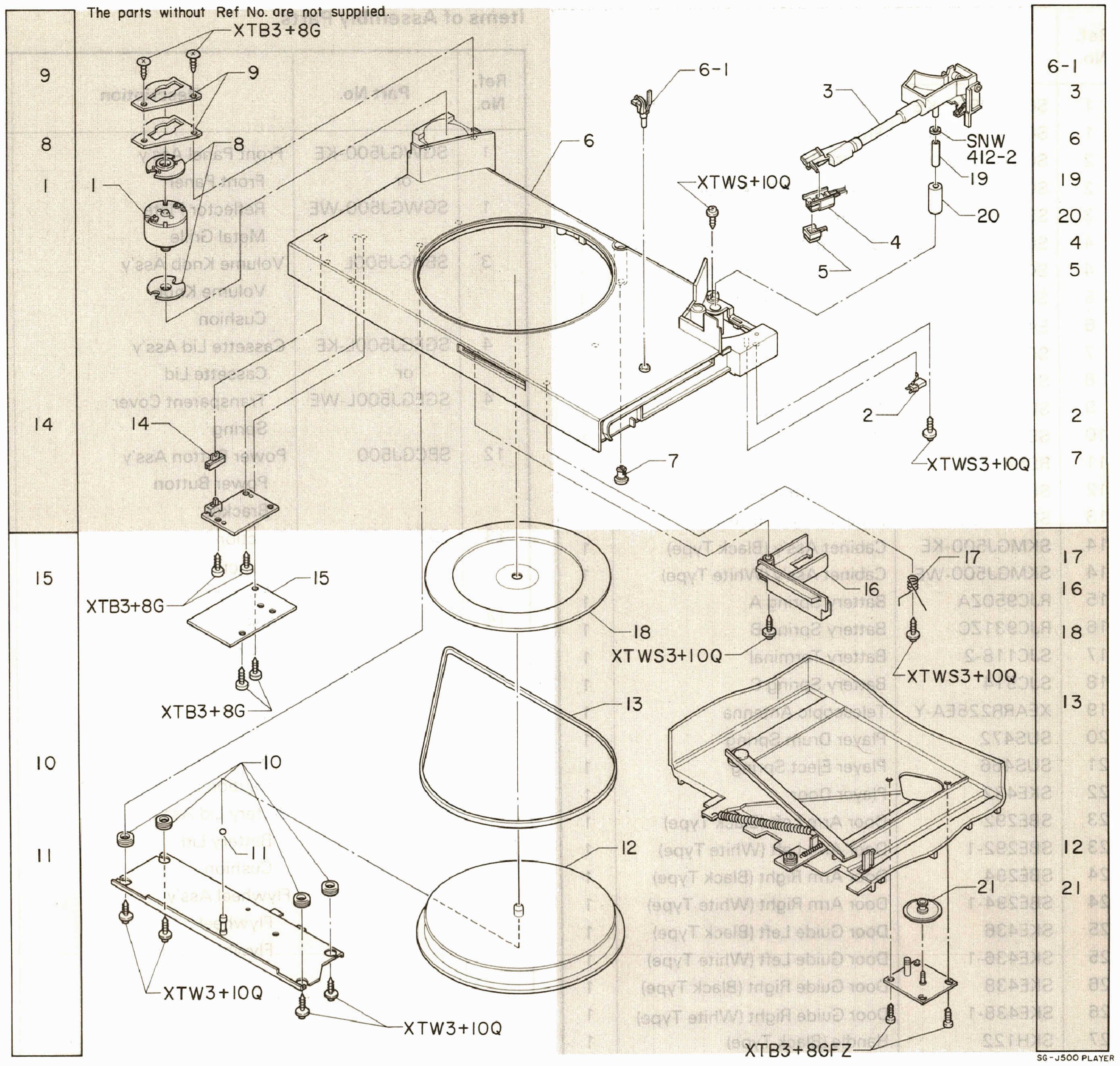
REPLACEMENT PARTS LIST OF CABINET AND CHASSIS

Ref. No.	Part No.	Description	Per Set (pcs.)
1	SGWGJ500-KE	Front Panel Ass'y (Black Type)	1
1	SGWGJ500-WE	Front Panel Ass'y (White Type)	1
2	SGE1678-2	Dial Scale (Black Type)	1
2	SGE1678-3	Dial Scale (White Type)	1
3	SBNGJ500L	Volume Knob Ass'y	2
4	SGEGJ500L-KE	Cassette Lid Ass'y (Black Type)	1
4	SGEGJ500L-WE	Cassette Lid Ass'y (White Type)	1
5	SUS464	Deck Eject Spring	1
6	EAS12P126GG	Speaker	2
7	SDD57	Dial Drum	1
8	SBN1136	Tuning Knob	1
9	SDA108	Pointer Bracket	1
10	SDP5120	Dial Pointer	1
11	RDS4170A	Dial Spring	1
12	SBCGJ500	Power Button Ass'y	1
13	SBCGJ500-1	Function Button Ass'y	4
14	SKMGJ500-KE	Cabinet Ass'y (Black Type)	1
14	SKMGJ500-WE	Cabinet Ass'y (White Type)	1
15	RJC950ZA	Battery Spring A	1
16	RJC931ZC	Battery Spring B	1
17	SJC118-2	Battery Terminal	1
18	SJC514	Battery Spring C	1
19	XEARR225EA-Y	Telescopic Antenna	1
20	SUS472	Player Drum Spring	1
21	SUS466	Player Eject Spring	1
22	SKE432	Player Door	1
23	SBE292	Door Arm Left (Black Type)	1
23	SBE292-1	Door Arm Left (White Type)	1
24	SBE294	Door Arm Right (Black Type)	1
24	SBE294-1	Door Arm Right (White Type)	1
25	SKE436	Door Guide Left (Black Type)	1
25	SKE436-1	Door Guide Left (White Type)	1
26	SKE438	Door Guide Right (Black Type)	1
26	SKE438-1	Door Guide Right (White Type)	1
27	SKH122	Handle (Black Type)	1
27	SKH122-1	Handle (White Type)	1
28	SKH124	Handle Bracket	2
29	SKKGJ500-K	Battery Lid Ass'y (Black Type)	1
29	SKKGJ500-W	Battery Lid Ass'y (White Type)	1
30	SKK110-3	Accessory Box Lid (Black Type)	1
30	SKK110-4	Accessory Box Lid (White Type)	1
31	SJYGJ500MEX	Flywheel Ass'y	1
32	SJJ108	Headphone/Mic Jack	1
33	RJJ1F2ZA-H	AC/DC IN Jack	1

Items of Assembly Parts.

Ref. No.	Part No.	Description	Per Set (pcs.)
1	SGWGJ500-KE	Front Panel Ass'y	1
	or	Front Panel	(1)
1	SGWGJ500-WE	Reflector Plate	(1)
		Metal Grille	(2)
3	SBNGJ500L	Volume Knob Ass'y	2
		Volume Knob	(2)
		Cushion	(2)
4	SGEGJ500L-KE	Cassette Lid Ass'y	1
	or	Cassette Lid	(1)
4	SGEGJ500L-WE	Transparent Cover	(1)
		Spring	(2)
12	SBCGJ500	Power Button Ass'y	1
		Power Button	(1)
		Bracket	(1)
13	SBCGJ500-1	Function Button Ass'y	1
		Function Button	(1)
		Bracket	(1)
14	SKMGJ500-KE	Cabinet Ass'y	1
	or	Cover	(1)
14	SKMGJ500-WE	Sheet	(1)
		Felt	(4)
		Cushion	(1)
		Name Plate	(1)
		Caution Label	(1)
29	SKKGJ500-K	Battery Lid Ass'y	1
	or	Battery Lid	(1)
29	SKKGJ500-W	Cushion	(2)
31	SJYGJ500MEX	Flywheel Ass'y	1
		Flywheel	(1)
		Flywheel Gear	(1)

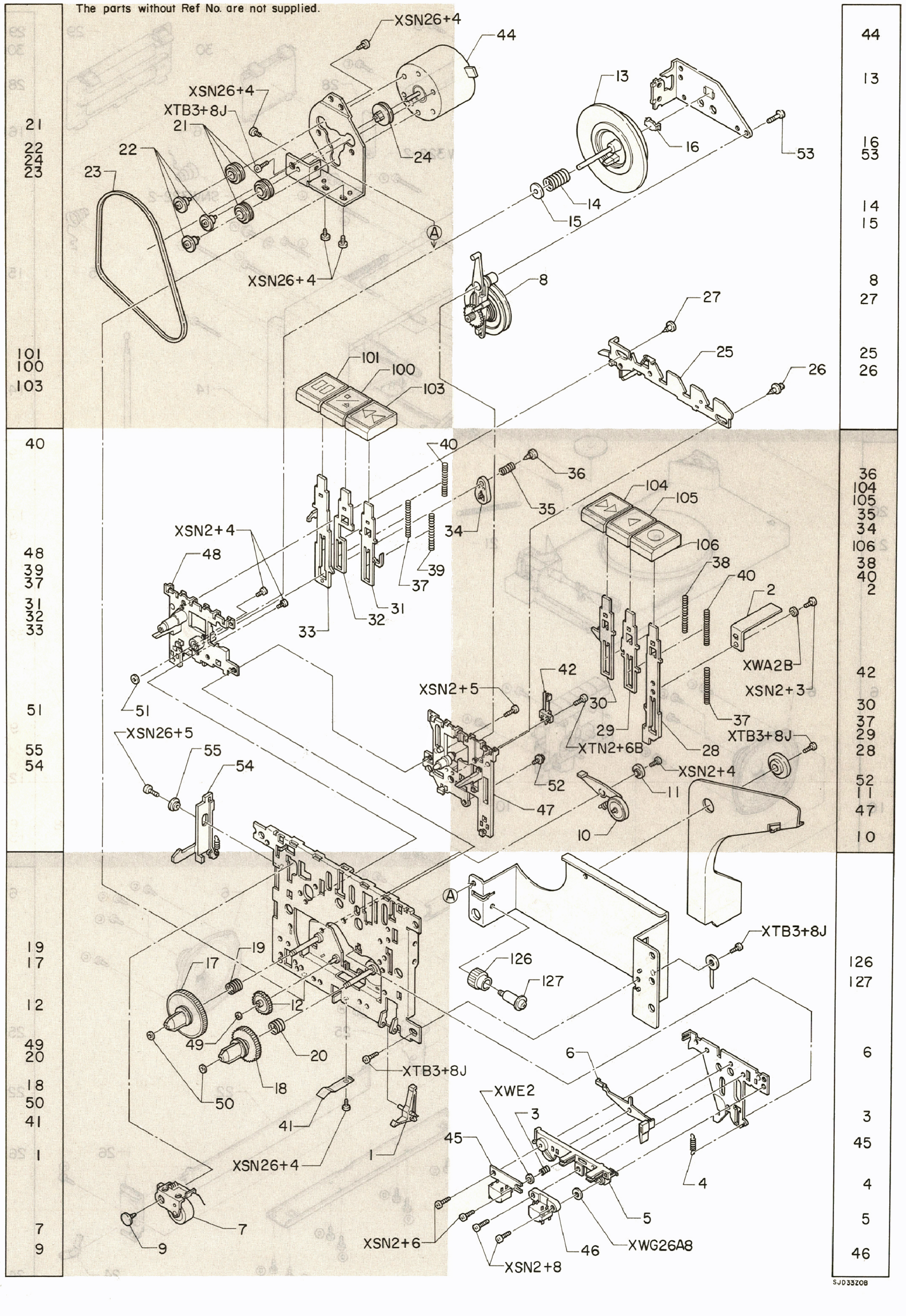
PARTS LOCATION OF RECORD PLAYER


The parts without Ref No. are not supplied.
XTB3+8G
9
8
1
6-1
6
3
SNW 412-2
19
20
XTWS+10Q
4
5
14
2
7
XTWS3+10Q
15
XTB3+8G
17
16
18
XTWS3+10Q
13
10
11
12
21
XTW3+10Q
XTB3+8GFZ
SG-J500 PLAYER

REPLACEMENT PARTS LIST OF RECORD PLAYER

Ref. No.	Part No.	Description	Per Set
1	MMNGJ500	Motor Ass'y	1
2	SSP74	Micro Switch	1
3	EPA644STA	Tone Arm	1
4	EPC13STH	Cartridge	1
5	EPS41ST	Stylus	1
6	SJYGJ500K	Player Board Ass'y (Black Type)	1
6	SJYGJ500W	Player Board Ass'y (White Type)	1
6-1	SJY342	Pick Rest Ass'y	1
7	SUD436	Spacer	1
8	SHG9260	Motor Rubber	2
9	SJY90422	Plate, Motor	2
10	SHG9238	Insulator	4
11	SJY90418	Ball	1
12	SJYGJ500	Turntable Ass'y	1
13	SJY90080	Turntable Belt	1
14	SBN1132	Slide Knob (Black Type)	1
14	SBN1132-1	Slide Knob (White Type)	1
15	SUV288	P.W.B. Cover	1
16	SJY5216	Button (Black Type)	1
16	SJY5216-1	Button (White Type)	1
17	SUS470	Button Spring	1
18	SJY4072	Turntable Mat	1
19	SJY90444	Tone Arm Shaft Bracket	1
20	SJY90446	Shaft Bracket Rubber	1
21	SJY90440	Pulley Gear	1

PARTS LOCATION OF CASSETTE TAPE DECK

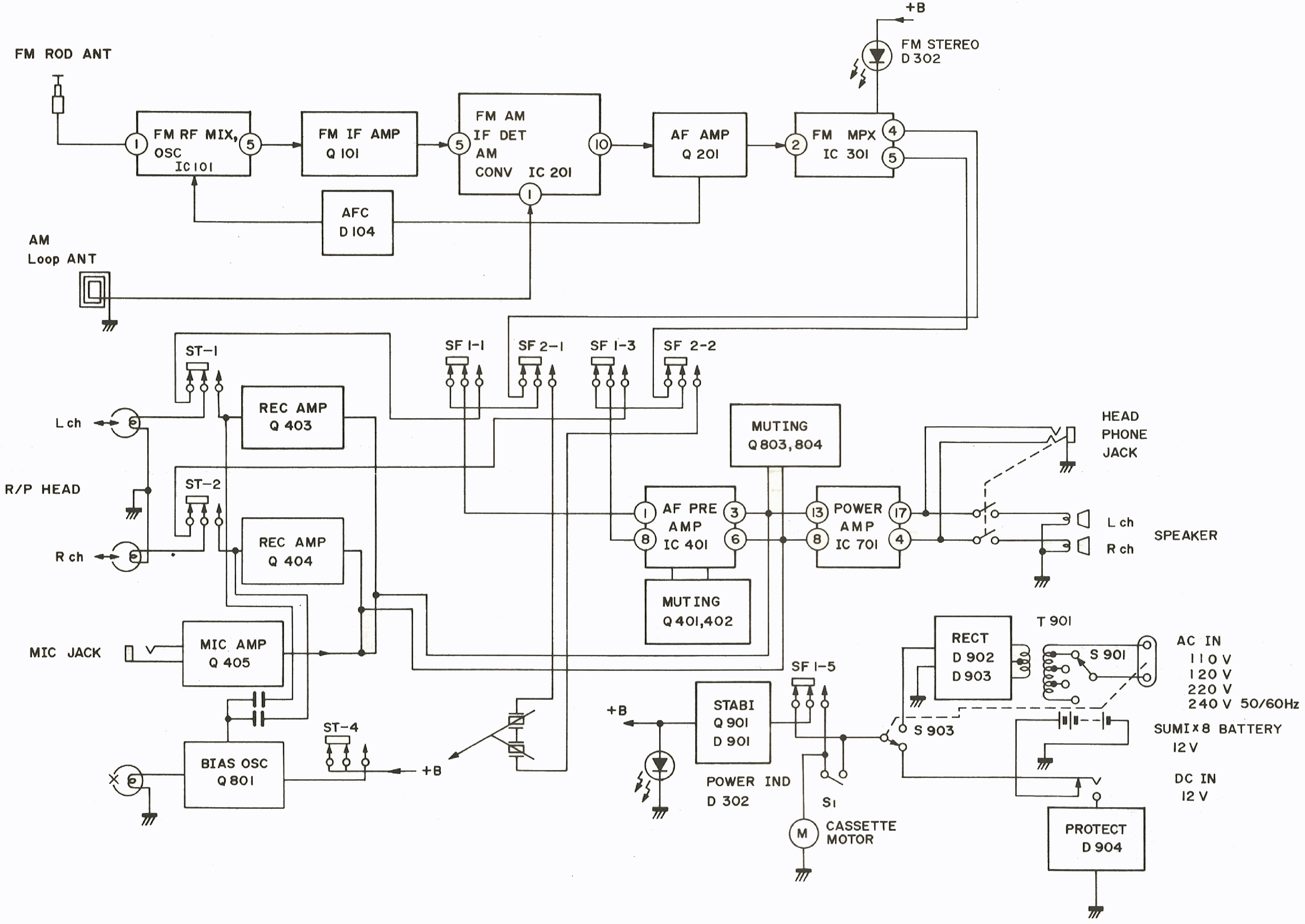

The parts without Ref No. are not supplied.
XSN26+4
44
13
XSN26+4
XTB3+8J
21
22
23
24
16
53
14
15
A
XSN26+4
8
27
25
26
101
100
103
40
36
35
34
104
105
106
XSN2+4
48
39
37
31
32
33
38
40
2
XWA2B
XSN2+3
42
XSN2+5
30
29
XTN2+6B
28
37
XTB3+8J
51
XSN26+5
55
54
52
11
XSN2+4
47
10
A
XTB3+8J
19
17
12
49
20
18
50
41
XTB3+8J
126
127
6
XWE2
3
45
4
5
1
XSN26+4
9
7
XSN2+6
46
XWG26A8
XSN2+8
SJD33208

REPLACEMENT PARTS LIST OF CASSETTE TAPE DECK

Ref. No.	Part No.	Description	Per Set
1	SMQ4778	Rec Safety Lever	1
2	SMQ4284	Rec Plate Spring	1
3	SMQ4596	Spring, Head	1
4	SMQ5436	Spring, Head Panel	1
5	SMQ5004	Head Base	1
6	SMQ5006	Sensing Piece	1
7	SMQ5008	Pinch Roller Ass'y	1
8	SMQ5010	RF Clutch Ass'y	1
9	SMQ4774	Stopper	1
10	SMQ5012	Roller Shaft Bracket Ass'y w/Spring	1
11	SMQ5014	Collar, Take up Roller	1
12	SMQ4810	Gear, FF	1
13	SMQ5016	Flywheel Ass'y	1
14	SMQ5018	Spring, Flywheel	1
15	SMQ5020	Washer	1
16	SMQ2538	Plate, Flywheel	1
17	SMQ5022	Take up Reel Ass'y	1
18	SMQ5024	Reel Ass'y, Supply	1
19	SMQ5026	Spring, Take up Reel	1
20	SMQ5028	Spring, Supply Reel	1
21	SMQ1834	Cushion, Motor	3
22	SMQ1908	Screw	3
23	SMQ5438	Belt, Main	1
24	SMQ4726	Pulley, Motor	1
25	SMQ5440	Operation Plate	1
26	SMQ4276	Operation Plate Shaft, Rec	1
27	SMQ5034	Operation Plate Shaft, Stop	1
28	SMQ5036	Lever, Rec	1
29	SMQ5038	Lever, Play	1
30	SMQ5040	Lever, Rew	1
31	SMQ5042	Lever, FF	1
32	SMQ5044	Lever, Stop	1
33	SMQ5046	Lever, Pause	1
34	SMQ2444	Lever, Click	1
35	SMQ5048	Spring, Click Lever	1
36	SMQ4862	Stopper	1
37	SMQ5050	Spring, Rec/Stop	2
38	SMQ5052	Spring, Rew	1
39	SMQ5054	Spring, FF	1
40	SMQ5056	Spring, Play/Pause	2
41	SMQ4278	Plate, Spring	1
42	SMQ5460	Switch, Motor	1
44	MMI5A2L	Motor	1
45	SJH92	R/P Head	1
46	SJH94	E Head	1
47	SMQ5064	Button Base, R	1
48	SMQ5434	Button Base, L	1
49	SMQ4930	Washer, FF Gear	1
50	SMQ4928	Washer, Reel Shaft	2
51	SMQ1402	Washer, Pulley	1
52	SMQ5068	Screw	1
53	SMQ5070	Screw	1
54	SMQ5462	Eject Slide Lever Ass'y w/Spring	1
55	SMQ5170	Collar, Eject Slide Lever	2
100	SBC592	Button, Stop/Eject	1
101	SBC594	Button, Pause	1
103	SBC590	Button, FF	1
104	SBC588	Button, Rew	1
105	SBC586	Button, Play	1
106	SBC584	Button, Rec	1
126	SMQ4096	Holder Gear	1
127	SNE270	Screw	1

Ref. No.	Part No.	Description	Per Set

BLOCK DIAGRAM


+B
FM STEREO
D 302
FM ROD ANT
FM RF MIX, OSC
IC 101
FM IF AMP
Q 101
FM AM IF DET
AM CONV
IC 201
AF AMP
Q 201
FM MPX
IC 301
AFC
D 104
AM
Loop ANT
ST-1
SF 1-1
SF 2-1
SF 1-3
SF 2-2
REC AMP
Q 403
MUTING
Q 803, 804
HEAD PHONE JACK
L ch
R/P HEAD
ST-2
AF PRE AMP
IC 401
POWER AMP
IC 701
L ch
SPEAKER
R ch
R ch
REC AMP
Q 404
MUTING
Q 401,402
T 901
RECT
D 902
D 903
S 901
AC IN
110 V
120 V
220 V
240 V 50/60Hz
MIC JACK
MIC AMP
Q 405
SF 1-5
STABI
Q 901
D 901
+B
S 903
SUMI×8 BATTERY
12 V
ST-4
BIAS OSC
Q 801
+B
POWER IND
D 302
S1
DC IN
12 V
CASSETTE MOTOR
M
PROTECT
D 904

SG-J500 BLOCK DIAGRAM

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